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Recovery Style Predicts Remission at One-Year Follow-Up in Outpatients With Schizophrenia Spectrum Disorders

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Abstract: Although people with schizophrenia use various coping strategies, it is largely unknown how their coping style contributes to remission of the illness. The concept of recovery style—either by sealing over or integrating—reflects an important distinction. We wanted to examine whether recovery style predicts remission at a 1-year follow-up. We examined the recovery style, insight, therapeutic alliance, and symptoms in 103 patients with psychotic disorders. To assess the remission status, the symptoms were measured at 6 and 12 months. Logistic regression analyses were used. Results showed that scoring an extra category toward integration (six categories exist) increased the odds of remission 1.84-fold (95% confidence interval, 1.11 to 3.03). Insight and therapeutic alliance were not predictive. Although remission was also predicted by positive symptom levels at baseline, this did not influence the effect of recovery style. In conclusion, independently of symptom levels, insight, or therapeutic alliance, an integrating recovery style increases the odds of remission at a 1-year follow-up.

Key Words: Recovery style, remission, coping, insight, outcome, psychosis.

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In recent years, consensus-defined standards for clinical status and improvement in patients with schizophrenia have become increasingly common. Remission criteria for schizophrenia have been introduced with the intent to facilitate insight into the etiology and the course of disease and to standardize comparisons across treatments (Andreasen et al., 2005; Van Os et al., 2006). The use of these criteria has underlain renewed efforts to identify the predictors of remission, such as cognitive performance (Helldin et al., 2006), baseline-negative symptoms (Petersen et al., 2008), duration of untreated psychosis (Emsley et al., 2006; Petersen et al., 2008), early symptomatic improvement (Emsley et al., 2006; Jäger et al., 2009), having intimate relations and being married (Bankole et al., 2008; Emsley et al., 2006), and lifetime traumatic events (Bankole et al., 2008).

Although people with schizophrenia often use various coping strategies when dealing with psychosis, the way in which their coping style contributes to remission of the illness is largely unknown (Tait et al., 2003). The concept of recovery style—either by sealing over or integrating—reflects an important distinction in coping with psychosis. "Integrators" are patients who are more likely to see their psychotic experience as something that is a part of them and has arisen from their life context, as something that they are responsible for, and as something that may be used as a source of information about themselves and their conflicts, relationships, and behavior (McGlashan et al., 1976). In contrast, individuals who seal over tend to distance themselves from their psychotic experiences, viewing them as causally independent, globally negative interruptions to their lives. Sealing over has been associated with more adverse childhood experiences (Drayton et al., 1998; Tait et al., 2004), suggesting that recovery style may arise out of an individual's life context rather than out of their psychotic experience. Integration allows for investment in relationships and may affect tolerance and acknowledgment of symptoms (Bell and Zito, 2005), whereas patients who seal over make more negative self-evaluations and have a more insecure identity than an integrator (Drayton et al., 1998; Tait et al., 2004). Because anticipating loss and experiencing shame predict later depression, sealing over may be motivated by defending against these emotions (Iqbal et al., 2000).

Evidence suggests that an integrating recovery style predicts higher service engagement (Tait et al., 2003), fewer symptoms at a 1-year follow-up (Thompson et al., 2003), and better long-term functional outcome (McGlashan, 1987).

In this study, we used the recent remission criteria for schizophrenia (Andreasen et al., 2005) to test whether an integrating recovery style would predict remission at 1-year follow-up. We also compared the effects of recovery style with those of the therapeutic alliance and insight into illness, to which it may be related, especially because insight and alliance are both known to influence the course of treatment and to predict outcome (*e.g.*, Emsley et al., 2008; Hewitt and Coffey, 2005).

METHODS

Study Population

The participants were the respondents in a multicenter randomized controlled trial conducted in the Dutch city of Rotterdam to investigate the effects of treatment adherence therapy. This tailored intervention allows four different intervention modules, such as behavioral interventions or an adapted form of motivational interviewing, to be applied according to a patient's individual reasons or in cases of noncompliance. Staring et al. (2006) provides a more detailed description of this. The four inclusion criteria were a) schizophrenia spectrum disorder (*Diagnostic and Statistical Manual for Mental Disorders, 4th edition*; DSM-IV), b) receiving outpatient treatment, c) mastery of the Dutch language, and d) at least some problems with service engagement, as defined by an average item score of 1.5 or higher on at least two subscales of the Service Engagement Scale (Tait et al., 2002). The latter means that patients were having at least some problems in two of the following domains: a) availability, b) collaboration, c) help-seeking, and d) medication compliance.

Design and Procedure

Patients were referred by their clinician and were asked by a research assistant to participate. Participants had to give written informed consent. All participants were assessed at baseline (T_0), 6 months (T_1), and 12 months (T_2). The assessments consisted of structured interviews with the respondent and his/her clinician. The assessment interviews were performed by students of psychology and medicine who had received training for 2 days in role playing and

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in the scoring of the measurement instruments. After corating a live interview by the main researcher, they performed two interviews under supervision. When their ratings were sufficiently consistent with those of the experienced researcher, the students did interviews independently but still under supervision every other week.

To assess mental disorders according to the definitions and criteria of DSM-IV (American Psychiatric Association, 1993) we used various interviews, including the lifetime Composite International Diagnostic Interview, version 2.1 auto (World Health Organization, 1997). Respondents were paid €20 for every time they participated in an interview. The study design was approved by the medical ethics committee of the Erasmus University Medical Centre.

Measurements

Psychopathology and Remission

The Positive and Negative Syndrome Scale (PANSS; Kay et al., 1987) is a 30-item rating scale that is completed by trained research staff at the conclusion of a semistructured interview. There are three subscales: a) positive syndrome, b) negative syndrome, and c) general psychopathology. Remission was defined as a score of 3 or lower for both T_1 and T_2 on the proposed eight PANSS items (Andreasen et al., 2005; Van Os et al., 2006) because such scores would suggest that the relevant symptoms had been in remission for at least 6 months. These eight remission items are P1 (delusions), P2 (conceptual disorganization), P3 (hallucinatory behavior), N1 (blunted affect), N4 (social withdrawal), N6 (lack of spontaneity), G5 (mannerisms/posturing), and G9 (unusual thought content).

Recovery Style

Recovery style was measured using the Recovery Style Questionnaire (RSQ; Drayton et al., 1998), a 39-item self-report measure designed to reflect categories consistently with the categories developed by McGlashan et al. (1975). The 39 items include 13 aspects of recovery style, each of which is assessed by three items. Using a formula (Drayton et al., 1998), the scores on each of these aspects are combined into the six following classifications along one dimension: a) integration, b) toward integrating, c) a mixed picture in which integration dominates, d) a mixed picture in which sealing over dominates, e) toward sealing over, and f) sealing over. The RSQ is reliable and correlates highly with the McGlashan interview-based measure (Drayton et al., 1998).

Insight

We used the self-report eight-item insight scale (IS) of Birchwood et al. (1994), which has three subscales: a) awareness of illness, b) relabeling of the symptoms to illness, and c) recognition of need for treatment. We used total scores in the analyses, which range from 0 to 12. The scale is reliable and valid and is easy to use within this group of patients (Birchwood et al., 1994).

Therapeutic Alliance

The 36-item Working Alliance Inventory (WAI) was used to measure the alliance factor of the therapeutic relationship as it is experienced by the patient (Horvath and Greenberg, 1989; Vervaeke and Vertommen, 1996). The WAI has two factors or subscales: the bond subscale or emotional component and the contract subscale, which consists of agreements on tasks and goals. It has good validity and reliability (Horvath and Greenberg, 1994; Vervaeke and Vertommen, 1996).

Statistical Analyses

Logistic regression analysis was used, with 1-year follow-up remission as the dependent variable. In the first block, the baseline scores on the three PANSS subscales and the treatment allocation (in light of the randomized controlled trial design) were entered into the model to control for them. In the next block, recovery style was added to the model. In the third block, we added the IS and the WAI to see whether they predicted remission and whether this, in any way, influenced the predictive power of recovery style. By then, however, there would be seven independent variables in the equation, and the number of events (remission) per variable should not be lower than 10 (Peduzzi et al., 1996). Because it was unlikely that this criterion would be met, we performed a last analysis in which all nonsignificant variables were deleted to produce the final regression model for predicting remission and also to see whether any significant observations would still hold.

Afterward, the order of model entry for recovery style, insight, and alliance was reversed, and the regression analysis was executed once more to see whether the obtained results would be confirmed.

For all analyses, SPSS 15.0 was used.

RESULTS

Patient Characteristics

A total of 195 patients were asked to participate. Seventy-nine refused. Because no data were available on those who refused, the biases caused by selective participation could not be analyzed. Two patients in the group of patients who were willing to participate were

TABLE 1. Respondents' Characteristics (N = 103)

Sex, *n* (%)	Male: 72 (70)
	Female: 31 (30)
Average age at T_0, mean (SD), yrs	39.0 (11.6)
Average age at first contact with a mental health institution, mean (SD), yrs	26.0 (9.6)
Employment, *n* (%)	Unemployed: 86 (84)
	Employed: 17 (16)
Ethnicity, *n* (%)	Dutch: 45 (43)
	Second-generation immigrants: 19 (19)
	First-generation immigrants: 39 (38)
Diagnoses, *n* (%)	
Schizophrenia	74 (72)
Paranoid type, *n*	57
Disorganized type, *n*	10
Catatonic type, *n*	6
Undifferentiated type, *n*	1
Schizoaffective disorder	29 (28)
Depressive type, *n*	19
Bipolar type, *n*	10
PANSS positive syndrome, mean (SD)	13.7 (5.4)
PANSS negative syndrome, mean (SD)	14.0 (5.7)
PANSS general psychopathology, mean (SD)	30.4 (9.6)
RSQ Recovery Styles, *n*	
1. Integration	18
2. Toward integrating	31
3. Mixed picture in which integration dominates	23
4. Mixed picture in which sealing over dominates	23
5. Toward sealing over	7
6. Sealing over	0

PANSS indicates Positive and Negative Syndrome Scale.

TABLE 2. Pearson Correlations of the Study Variables at Baseline

Pearson Correlations	PANSS Positive Syndrome	PANSS Negative Syndrome	PANSS General Psychopathology	Recovery Style (RSQ; High = Sealing Over)	Insight (IS)
PANSS negative syndrome	0.316**				
PANSS general psychopathology	0.623***	0.512***			
Recovery Style (RSQ; high = sealing over)	0.172	0.264**	0.101		
Insight (IS)	0.057	0.054	0.191	−0.277**	
Therapeutic Alliance (WAI)	0.100	0.072	−0.035	−0.027	0.008

**Correlation is significant at the 0.01 level (two-tailed).
***Correlation is significant at the 0.001 level (two-tailed).
PANSS indicates Positive and Negative Syndrome Scale; RSQ, Recovery Style Questionnaire; IS, insight scale; WAI, Working Alliance Inventory.

too disorganized to be able to complete the questionnaires. The remaining 114 completed the baseline assessments. Eleven patients were subsequently lost to follow-up; 1 had died as a consequence of physical health problems, and 10 refused to participate any further. Analyses were conducted on the remaining 103 patients (Table 1).

The participating patients were typically experiencing chronic psychiatric problems for an average of 13 years since their first contact with a mental health institution. Medication compliance was poor or even totally absent for some—19 patients were refusing all antipsychotic medication at baseline—yet it was not an issue for others. Because of the outpatient status at baseline and possibly because of the long histories of illness, the average PANSS scores were not very high; most were not experiencing acute full-blown psychotic episodes at study entry. However, they were at risk for relapse because of the problems with service engagement.

Predicting Remission

As shown in Table 2, an integrating recovery style was associated both with fewer negative symptoms and with better insight into illness. At a 1-year follow-up, 22 of the 103 patients (21.4%) had been in remission for at least six months.

As shown in Table 3, the patients who were in remission at 1-year follow-up had lower baseline scores on the eight relevant PANSS items than did those who did not reach remission. Interestingly, both groups showed small improvements on the positive symptom scores. However, patients in the remission group improved on negative symptoms as well, whereas for patients in the nonremission group, negative symptoms and odd mannerisms/postures seemed more likely to worsen as the study progressed. The average PANSS total score remained about the same (60.8 at baseline and 60.3 at 1-year follow-up) for those patients who did not reach remission, whereas it improved (48.0 to 42.5) for those who did.

In the first block of the logistic regression analysis, the proportion of explained variance (Nagelkerke r^2) was 0.289, and the only significant independent variable was the PANSS positive-syndrome subscale (Wald = 9.89; exp(B) = 0.748; $P < 0.01$). When recovery style was added in the second block, the explained variance increased to 0.352. Positive symptoms (Wald = 8.38; exp(B) = 0.756; $P < 0.01$) and recovery style (Wald = 4.63; exp(B) = 0.566; $P < 0.05$) both significantly predicted remission. In the third block, insight and therapeutic alliance were added. The explained variance increased only a little to .379, and none of the new variables added significantly to the model.

In the final model, all nonsignificant variables were deleted, leaving only positive symptoms and recovery style. Because there were 22 events of remission, the number of events per variable was higher than 10, and the results were thus expected to be reliable (Peduzzi et al., 1996). As shown in Table 4, positive symptoms

TABLE 3. Average PANSS Scores on the Remission Items at Baseline (T_0), 6 Mos (T_1), and 12 Mos (T_2), Divided Into Those Patients Who Received Remission and Those Who Did Not

Group of Patients	PANSS Remission Item	T_0: Baseline	T_1: 6 Mos	T_2: 12 Mos
Those who are not in remission at T_2 (n = 81)	P1, delusions	2.88	2.51	2.39
	P2, conceptual disorganization	2.40	2.36	2.23
	P3, hallucinatory behavior	2.43	2.45	2.10
	N1, blunted affect	2.22	2.35	2.57
	N4, social withdrawal	2.51	2.51	2.42
	N6, lack of spontaneity	1.72	1.69	1.89
	G5, mannerisms/posturing	1.35	1.32	1.72
	G9, unusual though content	2.40	2.09	2.01
Those who are in remission at T_2 (n = 22)	P1, delusions	1.55	1.23	1.36
	P2, conceptual disorganization	1.77	1.41	1.55
	P3, hallucinatory behavior	1.27	1.00	1.05
	N1, blunted affect	1.73	1.50	1.55
	N4, social withdrawal	1.77	1.36	1.32
	N6, lack of spontaneity	1.64	1.09	1.18
	G5, mannerisms/posturing	1.18	1.18	1.14
	G9, unusual though content	1.27	1.14	1.55

PANSS indicates Positive and Negative Syndrome Scale.

TABLE 4. Results of the Final Logistic-Regression Model With Remission at 1-Yr Follow-Up as the Dependent Variable (Model Summary: 2 Log Likelihood, 81.910; Cox and Snell $r^2 = 0.213$; Nagelkerke $r^2 = 0.329$)

Variables in the Equation	B	SE	Wald	*p*	Exp(B)	95% CI of Exp(B)
PANSS positive syndrome	−0.248	0.083	9.040	0.003	0.780	0.664–0.917
Recovery style	−0.609	0.256	5.676	0.017	0.544	0.330–0.898

PANSS indicates Positive and Negative Syndrome Scale; CI, confidence interval.

and recovery style together predicted 32.9% of the variance of remission status at 1-year follow-up. Recovery style had an exp(B) of 0.544, which means that a patient's use of one category more toward an integrating than a sealing over recovery style (six categories exist) was estimated to increase by a factor of 1.84 (1/0.544) times the odds that he or she would be in remission at 1-year follow-up (95% confidence interval, 1.11 to 3.03). With three categories toward integration, this would be 6.23 times the odds of being in remission.

To test the stability of the results, we have executed the regression analysis once more, although, this time, the order of model entry was reversed: in the second block, we entered insight and alliance, whereas only at the end was recovery style included. This analysis confirmed our results. When recovery style was not included in the second block, insight had a near-significant effect on remission status (Wald = 3.641; exp(B) = 1200; $p = 0.056$). This effect diminished once recovery style was included in the model.

Persistent Remission or Achieved Remission During the Study Period

At baseline (T_0), 32 of the 103 patients met the remission criteria (a score of 3 or lower on the 8 relevant items). At T_1 (6 months), 39 patients did, and at T_2 (12 months) 35 patients did. Across time, these were not always the same individuals. Some relapsed, whereas others achieved remission. At T_2, a total of 22 patients had been in remission for 6 months. Of these, 14 had already been meeting remission criteria at baseline. The other eight patients achieved remission during the study period. Although recovery style was associated with remission status at baseline (T_0; logistic regression analysis: Wald = 4.30; $p = 0.038$), this effect disappeared when baseline symptom levels were included as covariates. This was not the case for the prediction of remission status at T_2; baseline recovery style remained a significant contributor even though baseline symptom levels were corrected for.

Therefore, recovery style partly seemed to predict persistent remission for those patients who were already in remission at baseline, yet it also seemed to have a contribution to predicting which of the patients who were having more symptoms at baseline achieved remission later on.

Being Married and Recovery Style

Some studies have found that remission in schizophrenia was predicted by a patient's having intimate relations and being married (Bankole et al., 2008; Emsley et al., 2006). Because there are some reasons for assuming that marital status and recovery style can be related—to be addressed in the discussion section—we looked into this in our sample. However, because only 11 patients were either married or living with a partner, a *t*-test did not produce any statistically meaningful results on remission or recovery style. This lack of variation does mean, however, that the observed effect of recovery style on remission is unlikely to be strongly related to marital status.

DISCUSSION

Main Findings

The most important finding of this study is that the use of an integrating recovery style by patients with schizophrenia or a schizoaffective disorder strongly increased their odds of being in remission at 1-year follow-up. This was independent of symptom levels, insight into illness, and therapeutic alliance.

This finding is in line with other studies that have shown the bearing of a patient's recovery style on their engagement with treatment and their recovery from psychosis (McGlashan, 1987; Tait et al., 2003; Thompson et al., 2003). It seems that an integrating recovery style allows patients to invest in relationships, tolerate affective states, and acknowledge symptoms (Bell and Zito, 2005) and that this may be crucial for engaging effectively with treatment, achieving sustainable symptom remission, and constructively adapting one's life after a psychotic episode.

Some studies have found that remission in schizophrenia was predicted by a patient's having intimate relations, being married (Bankole et al., 2008; Emsley et al., 2006), and lacking lifetime traumatic events (Bankole et al., 2008). It may be that the influence of these factors is mediated by recovery style. It is known, for example, that patients with a sealing over recovery style perceive their parents to be less caring—suggesting that the roots of sealing over may, in part, stem from an insecure attachment in childhood (Drayton et al., 1998). Similarly, Tait et al. (2004) found sealing over to be associated with negative early childhood experiences, insecure adult attachment, negative self-evaluative beliefs, and an insecure identity. They concluded that a sealing over recovery style denotes a person's low personal resilience in adapting to psychosis and reflects a history of attachment difficulties that are still manifest in current adult relationships (Tait et al., 2004). The connection between sealing over and lower social competence has also been supported by empirical evidence (Modestin et al., 2004). It may thus be that a patient's recovery style mediates both the negative impact of traumatic lifetime events on the remission of schizophrenia and the positive effect of marriage and intimate relationships. However, because only a minority of the patients in our sample was married or was living with a partner, marital status cannot explain our results to a large extent.

We did not find that insight into illness or therapeutic alliance were predictive of remission at 1-year follow-up, despite the fact that other studies have shown these concepts to be of important clinical significance (*e.g.*, Emsley et al., 2008; Hewitt and Coffey, 2005). It may be that our sample size was too small to detect their influence. On the other hand, other studies have supported the notion that recovery style is more predictive for the course of illness than insight is (Tait et al., 2003). From this point of view, it is important to note that, although our study found an association between insight and recovery style, the two are not synonymous. It is possible for patients to seal over with or without insight (*e.g.*, "I know I am ill but it was just one of those things and I want to forget about it and move on"; Tait et al., 2003).

We did not find that negative symptom levels at baseline were predictive of remission, which contrasts with the findings of Petersen et al. (2008). However, because we also found negative symptoms to be associated with the use of a sealing over recovery style, our statistical model may have preempted the effects of negative symptoms, allowing the results to be dominated by those of recovery style. Indeed, in the first block of the regression analysis, negative symptoms almost had a significant effect on remission (Wald = 2.919; exp(B) = 0.890; $p = 0.088$).

Limitations

The main limitations of this study involve issues of sample-composition, which therefore limit the options for generalizing the results. For example, our sample size was not large, and the number of remissions at 1-year follow-up was only 22. Similarly, most of the participants were men (70%). In addition, because of an exclusion criterion of the randomized controlled trial, the study did not include patients with very high service engagement. It is also not probable that patients with a very low service engagement were included in the study either because they were not in outpatient treatment or because they had refused to participate, a factor that is likely to be related to a sealing over recovery style. Although the latter may have introduced a bias in our sample, we made considerable efforts—including offering financial incentives—to ensure that all eligible patients would be included and that the sample would thus represent everyday practice. This means that there were few exclusion criteria and that even fairly disorganized or psychotic patients were included.

Another limitation is that the PANSS scores were generally low at baseline, allowing for only minor improvements. Those patients reaching remission had an average decrease in the PANSS total score of 5.5 points, which for an individual patient may correspond with a substantial improvement on one item (*e.g.*, hallucinations), but it is equally possible that it corresponds with small improvements, spread out among the various items. Therefore, even though recovery style predicted remission while baseline symptom levels were controlled for, the magnitude of improvement as a consequence of a patient's type of recovery style may be small.

Finally, because we did not experimentally influence recovery style, it is not possible to draw firm conclusions on directions of causality. It may be, for example, that some patients who were already experiencing symptomatic improvement before entry in the study got more optimistic and less afraid of their psychotic episode, leading them to score higher on an integrating recovery style. In that case, it may have been early improvement, rather than recovery style, that caused the remission status later on. Multiple explanatory scenarios exist, and this should be taken into account when regarding our results.

Strengths

As far as we know, this is the first study to use the recently defined criteria to examine the influence of recovery style on the remission of schizophrenia at follow-up. One important methodological strength is the low attrition rate (9.6%). Another strength is that, by comparing the effects of recovery style with the effects of clinically related and important concepts such as insight and therapeutic alliance, we have also helped disentangle the psychological processes that are most relevant to recovery from a psychotic episode.

Clinical Implications

Assuming that our results represent a causal relationship, they indicate that long-term remission may perhaps be promoted by helping patients use a more integrating recovery style, for example, by talking with them about their psychotic experiences and by urging them not only to take an interest in these experiences during recovery but also to place them in a coherent perspective within the self-narrative.

Although it can be difficult to change a patient's recovery style, empirical evidence shows that it is not solely a trait characteristic (Tait et al., 2003). Recovery styles may vary at different stages of the recovery process. During the acute phase, for example, patients may be integrating, attempting to cope constructively with the challenge of the new situation. However, during the course of clinical recovery, when the opportunity for reflection begins, they may use more sealing over. This means that an effect may be achieved by interventions that focus on a constructive recovery style and on talking about psychotic experiences. One illustration of this is the finding that getting patients to write about the most stressful aspects of their psychotic episode (emotional disclosure) helps reduce psychosis-related posttraumatic stress symptoms (Bernard et al., 2006).

Because vulnerable self-esteem is related to greater sealing over (Drayton et al., 1998), patients who use sealing over may be those who experience greater loss and shame in their psychosis. To help them achieve greater integration, it may therefore be useful to address self-stigmatization and self-esteem. Rather than providing neurobiological explanations and only telling a patient that he has an incurable brain disease, strategies for this might include normalizing psychotic experiences within the stress-vulnerability model and within the range of subclinical psychotic symptoms in the general population. Important contributions to altering recovery style and achieving remission may also be made through interventions intended to improve a patient's self-esteem (*e.g.*, Tarrier, 2001).

In general, assuming that our correlation findings reflect some causal relation, the results of this study seem to indicate that psychological adjustment to psychosis should be promoted through the development of interventions such as motivational interviewing and cognitive therapy.

CONCLUSIONS

Independently of symptom levels, insight, or therapeutic alliance, an integrating recovery style increased the odds of remission at 1-year follow-up in 103 patients with a psychotic disorder. Insight and therapeutic alliance were not predictive. It may be that recovery style mediates both the negative impact of traumatic lifetime events on the remission of schizophrenia and the positive effect of marriage and intimate relationships.

Remission may be stimulated by a focus on talking about psychotic experiences, for example, through cognitive therapy or by getting patients to write about stressful aspects of a psychotic episode.

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